General

Guideline Title

Determination of gestational age by ultrasound.

Bibliographic Source(s)

Butt K, Lim K, Society of Obstetricians and Gynaecologists of Canada. Determination of gestational age by ultrasound. J Obstet Gynaecol Can. 2014 Feb;36(2):171-81. [118 references] PubMed

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The quality of evidence assessment (I-III) and classification of recommendations (A-E, L) are defined at the end of the "Major Recommendations" field.

Gestational Age Estimates Using Clinical Dating

Crown-Rump Length

Recommendations

1. First-trimester crown-rump length is the best parameter for determining gestational age and should be used whenever appropriate. (I-A)
2. If there is more than one first-trimester scan with a mean sac diameter or crown-rump length measurement, the earliest ultrasound with a crown-rump length equivalent to at least 7 weeks (or 10 mm) should be used to determine the gestational age. (III-B)
3. Between the 12th and 14th weeks, crown-rump length and biparietal diameter are similar in accuracy. It is recommended that crown-rump length be used up to 84 mm, and the biparietal diameter be used for measurements >84 mm. (II-1A)

Transabdominal Versus Transvaginal Ultrasonography

Recommendation

4. Although transvaginal ultrasound may better visualize early embryonic structures than a transabdominal approach, it is not more accurate in determining gestational age. Crown-rump length measurement from either transabdominal or transvaginal ultrasound may be used to determine gestational age. (II-1C)

Composite Versus Single Biometry Measurement

Recommendations

5. If a second- or third-trimester scan is used to determine gestational age, a combination of multiple biometric parameters (biparietal diameter, head circumference, abdominal circumference, and femur length) should be used to determine gestational age, rather than a single parameter. (II-1A)
6. When the assignment of gestational age is based on a third-trimester ultrasound, it is difficult to confirm an accurate due date. Follow-up of interval growth is suggested 2 to 3 weeks following the ultrasound. (III-C)

What Is the Best Method for Assigning Gestational Age?

Summary Statements

1. When performed with quality and precision, ultrasound alone is more accurate than a "certain" menstrual date for determining gestational age in the first and second trimesters (≤23 weeks) in spontaneous conceptions, and it is the best method for estimating the delivery date. (II)
2. In the absence of better assessment of gestational age, routine ultrasound in the first or second trimester reduces inductions for post-term pregnancies. (I)

Should Routine First Trimester Dating Ultrasounds Be Offered to All Pregnant Women?

Summary Statements

3. Ideally, every pregnant woman should be offered a first trimester dating ultrasound; however, if the availability of obstetrical ultrasound is limited, it is reasonable to use a second trimester scan to assess gestational age. (I)
4. Notwithstanding Summary Statements 1, 2, and 3, women vary greatly in their awareness of their internal functions, including ovulation, and this self-knowledge can sometimes be very accurate. (III)

Definitions:

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from the Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

Classification of Recommendations†

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

†Adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Pregnancy

Guideline Category

Evaluation

Clinical Specialty

Obstetrics and Gynecology

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To assist clinicians in assigning gestational age based on ultrasound biometry

Target Population

Pregnant women

Interventions and Practices Considered

1. Ultrasound
    - Routine testing in first trimester
    - Transvaginal or transabdominal approach
2. Crown-rump length measurement
3. Multiple biometric parameters (biparietal diameter, head circumference, abdominal circumference, femur length) if second or third trimester
4. Follow-up of interval growth

Major Outcomes Considered

- Accurate gestational age assessment

- Determination of superior ultrasound biometric parameters
- Cost-effectiveness

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Searches of Unpublished Data

Description of Methods Used to Collect/Select the Evidence

Published literature was retrieved through searches of PubMed or MEDLINE and The Cochrane Library in 2013 using appropriate controlled vocabulary and key words (gestational age, ultrasound biometry, ultrasound dating). Results were restricted to systematic reviews, randomized control trials/controlled clinical trials, and observational studies written in English. There were no date restrictions. Searches were updated on a regular basis and incorporated in the guideline to July 31, 2013. Grey (unpublished) literature was identified through searching the websites of health technology assessment and health technology-related agencies, clinical practice guideline collections, clinical trial registries, and national and international medical specialty societies.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case–control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

The quality of evidence in this document was rated using the criteria described in the Report of the Canadian Task Force on Preventive Health Care (see the "Rating Scheme for the Strength of the Evidence" field).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Classification of Recommendations†

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

†Adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

Cost Analysis

Although no comprehensive cost benefit analysis has been done on routine early ultrasound for dating, the current literature suggests significant benefits are present.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

This clinical practice guideline has been prepared by the Diagnostic Imaging Committee, reviewed by the Family Physician Advisory Committee, and approved by the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Accurate assignment of gestational age may reduce post-dates labour induction and may improve obstetric care through allowing the optimal timing of necessary interventions and the avoidance of unnecessary ones.
- More accurate dating allows for optimal performance of prenatal screening tests for aneuploidy.
- A national algorithm for the assignment of gestational age may reduce practice variations across Canada for clinicians and researchers.
- Using ultrasound-based gestational age assignment would also result in improved performance of prenatal screening programs. Using ultrasound estimates exclusively would increase sensitivity for Down syndrome anywhere from 9% to 16%, and/or decrease false-positive rates (for a set sensitivity) by 2.6%.

Potential Harms

Possible reassignment of dates when significant fetal pathology (such as fetal growth restriction or macrosomia) result in a discrepancy between ultrasound biometric and clinical gestational age. Such reassignment may lead to the omission of appropriate—or the performance of inappropriate—fetal interventions.

Qualifying Statements

Qualifying Statements

This document reflects emerging clinical and scientific advances on the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level. None of these contents may be reproduced in any form without prior written permission of the Society of Obstetricians and Gynaecologists of Canada (SOGC).

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Foreign Language Translations

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Butt K, Lim K, Society of Obstetricians and Gynaecologists of Canada. Determination of gestational age by ultrasound. J Obstet Gynaecol Can. 2014 Feb;36(2):171-81. [118 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2014 Feb

Guideline Developer(s)

Society of Obstetricians and Gynaecologists of Canada - Medical Specialty Society

Source(s) of Funding

Society of Obstetricians and Gynaecologists of Canada

Guideline Committee

Diagnostic Imaging Committee

Composition of Group That Authored the Guideline

Principal Authors: Kimberly Butt, MD, Fredericton NB; Ken Lim, MD, Vancouver BC

Diagnostic Imaging Committee: Ken Lim, MD (*Chair*), Vancouver BC; Stephen Bly, MD, Ottawa ON; Kimberly Butt, MD, Fredericton NB; Yvonne Cargill, MD, Ottawa ON; Greg Davies, MD, Kingston ON; Nanette Denis, RDMS, Saskatoon SK; Gail Hazlitt, RN, RDMS, Winnipeg MB; Lucie Morin, MD, Montreal QC; Annie Ouellet, MD, Sherbrooke QC; Shia Salem, MD, Toronto, ON

Financial Disclosures/Conflicts of Interest

Disclosure statements have been received from all contributors.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Society of Obstetricians and Gynaecologists of Canada (SOGC) Web site. Also available in French from the SOGC Web site.

Print copies: Available from the Society of Obstetricians and Gynaecologists of Canada, La société des obstétriciens et gynécologues du Canada (SOGC) 780 promenade Echo Drive Ottawa, ON K1S 5R7 (Canada); Phone: 1-800-561-2416.

Availability of Companion Documents

None available

Patient Resources

The following is available:

- Ultrasound in pregnancy. Women's health information. Electronic copies: Available from the Society of Obstetricians and Gynaecologists of Canada (SOGC) Web site. Also available in French from the SOGC Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI Institute on May 7, 2014. The information was verified by the guideline developer on June 4, 2014.

Copyright Statement

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouseâ„¢ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion-criteria.aspx.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical

practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.